153550 RK65 1/29/91

JAN 29 1991

EPA — EPA REGION 5

Date ____________

Michael Mikulka

To	Mail Code	Location	Michael Mikulka	From
	5RA	JCK-14	Office of Regional Administrator	
	5GL	536- 9	Office of Great Lakes National Programs	
	5PA	JCK-14	Office of Public Affairs	
	5PL	JCK-14	Library	
	5C	JCK-16	Office of Regional Counsel	
	5CA	JCK-16	Air, Water, Toxics, & General Law	
	5CS	JCK-16	Solid Waste & Emergency Response	
	5A	JCK-26	Air Management Division	
	5AC	JCK-26	Air Compliance Branch	
	5AR	JCK-26	Air & Radiation Branch	
	5S	536-10	Environmental Services Division	
	5SCRL	536-10	Central Regional Laboratory	
	5SEM	536-10	Environmental Monitoring Branch	
	5STM	536-10	Toxic Materials Branch	
	5SQA	536-10	Quality Assurance Office	
	5SCF	536-10	Central Field Office	X
	5SEF	OHIO	Eastern Field Office	
	5M	JCK-14	Planning & Management Division	
	5ME	JCK-14	Environmental Review Branch	
	5MF	JCK-14	Grants & Financial Management Branch	
	5MFG	JCK-14	Grants Management Section	
	5MS	JCK-14	Management Services Branch	
	5MSC	JCK-14	Contracts and Procurement Section	
	5MSA	JCK-14	Administrative Services Section	
	5MSO	JCK-14	Office Services Unit/Mail Room	
	5MSD	JCK-11	Data Management Section	
	5MSG	JCK-11	Graphic Arts	
	5MP	JCK-14	Personnel Branch	
	5MA	JCK-14	Planning & Analysis Branch	
	5H	JCK-13	Waste Management Division	
	5HR	JCK-13	Emergency & Remedial Response Branch	
	5HS	JCK-13	Solid Waste Branch	
	5HE	JCK-13	Hazardous Waste Enforcement Branch	
	5HGI	MICH.	Grosse Ile, Michigan Office	
	5W	TUB- 8	Water Division	
	5WG	TUB- 8	Office of Groundwater Protection	
	5WD	JCK-12	Drinking Water Branch/U.I.C.	
	5WF	TUB- 9	Municipal Facilities Branch	
	5WFI	TUB- 9	Environmental Impact Section	
	5WFP	TUB- 9	Municipal Planning Section	
	5WFE	TUB- 9	Municipal Engineering Section	
	5WFM	TUB- 9	Program Management Section	
	5WQ	TUB- 8	Water Quality Branch	
X	5WQC	TUB- 8	Compliance Section	
	5WQD	TUB- 8	Dredge & Fill Section	
	5WQP	TUB- 8	Permits Section	
	5WQS	TUB- 8	Planning & Standards Section	
		JCK- 4	Office of Criminal Enforcement	
		10 W JACK	Office of Inspector General/Audit	

Info [X] Per Telecon [ ] Comment [ ] Action [ ]

Remarks (See Below or Reverse)

RS Form 1320.1 (Rev. 11/84)

① JC — C.H. 1-31-91

② ~~Jim F~~ ~~Arita~~

ORIG: → Jim Barnes

cc: Jim F

Tom Martin ✓

Lisa Cherup

Joan K

Tom - pls review/evaluate

Jim - pls transmit cys to State as this, & the CSI.

JAN 30 1991

COMPLIANCE SECTION

Tell Them RAE will be done soon.

[signature]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
CENTRAL DISTRICT OFFICE
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605

Date: JAN 2 9 1991

Subject: Acute Bioassay Report, American Bottoms Regional Wastewater Treatment Facility (ABRWTF), Sauget, Illinois (IL0065145) (AFE123:AB)

From: John J. McGuire, Environmental Engineer,
Central District Office(5SCDO)

To: Michael Mikulka, Chief
Compliance Section (5WCC)

THRU: Willie H. Harris, Chief _____Permit Related Issue
Central District Office (5SCDO)

On October 30-31, 1990 Keith Lesniak and I conducted compliance sampling (CSI-T) and biomonitoring inspections at the subject facility in response Water Division's request for FY '91 inspections. Mr. Nick Mahlandt of the Illinois Environmental Protection Agency accompanied us on the inspection. Messrs. George Shillinger, Superintendent; Robert D. Roddy, Plant Manager; Dan Sentman, Operation Supervisor; and Eleanor Fletcher, Plant Chemist, supplied the information for this report. Prior to the inspection, I presented my credentials to Mr Roddy. A Form 3560 is attached.

Clyde Marion, PhD Environmental Scientist, of CDO, conducted a performance audit (PAI) of the on-site laboratory during the inspection. The results of the PAI will be forwarded under separate cover. Also, a audit of the industrial sampling program was also conducted and will included in the PAI report. Results of the CSI-T will be sent in a separate reort.

Facility Description

The American Bottoms Regional Wastewater Treatment Facility (ABRWTF) receives wastewater from Cahokia, East St. Louis, and Sauget. The Cahokia and East St. Louis wastewater enters the facility and receives primary treatment. The effluent from the primary treatment is mixed with the Sauget Physical/Chemical plant effluent. This combined waste stream then receives secondary activated sludge treatment. The effluent is treated with chlorine and discharged to the Mississippi River. The facility is designed to have activated carbon (PACT™) added to the aeration basin. The return sludge was to be processed in a Zimpro Wet Air Regeneration (WAR) system to recover and reactivate the carbon before it is returned to the aeration

basin. Sludge from the WAR system was to be subjected to ash separation before return to the aeration basin.

Primary sludge is treated with ferric chloride and lime prior to processing through four vacuum filters. The sludge is trucked to a landfill.

At the time of the inspection all treatment units needed to treat the volume of wastewater entering the plant were in service with the exception of all the Zimpro processes (PACT™, WAR, and ash separation system). Carbon was being added on a once through basis and not recovered. The total flow of the discharge from the facility on the day of the inspection was 17.3 mgd. There was 12.2 mgd entering the facility from East St. Louis and Cahokia and 5.2 mgd coming from the Physical-Chemical plant in Sauget.

EPA Sampling

A composite sample (90CM02S03) was collected from 12:00pm, October 30 to 11:00am October 31, for an Acute Bioassay. The sample was collected from the 002 discharge at the entrance to the Parshal flume and near the location were the facility adds chlorine. The pH of the ABRWTF effluent at the time of sampling was 6.86 and the water temperature was 23.0° C.

The effluent from this facility is discharged to the Mississippi River. The 7-day 10-year low flow for the nearest upstream USGS reporting station, (# 7-0100) at St Louis, Missouri, is 45,970 cfs.

Sampling Results

The Central Regional Laboratory conducted a series of four toxicity tests to characterize each effluent. These included acute static testing of fathead minnows (Pimephales promelas) in a 96 hour definitive test, Daphnia pulex or D. magna in a 48 hour definitive test, Ceriodaphia dubia in a 48 hour definitive test, and an ammonia toxicity test.

A copy of results of these test are attached. Only the Ceriodaphia dubia and Daphnia pulex data were used in the acute series of test conducted on the Sauget ABRWTF. The fathead minnow test was invalid due to unacceptable control mortality.

In the Ceriodaphia test the most sever mortality occurred in the 100% and 50% effluent concentrations. For the Daphnia, severe mortality occurred in 100%, 50%, 25%, and 12.5% concentrations. EC50's for these two tests species were 35.3% and 8.5% effluent respectively, which is considered to be acutely toxic.

If you have any questions concerning this report, contact me at 353-2750. Questions pertaining to the Bioassay, should be directed to Charles J. Steiner, of the CRL, at 353-9070.

Attachments

cc Joan Karnauskas, Chief, 5WQC

EPA

United States Environmental Protection Agency
Washington, D. C. 20460

NPDES Compliance Inspection Report

Form Approved
OMB No. 2040-0003
Approval Expires 7-31-85

Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 N	2 5 3 I L 0 0 6 5 1 4 5 11	12 9 0 1 0 3 0 17	18 S	19 A	20 1

Remarks

66

Reserved	Facility Evaluation Rating	BI	QA	Reserved	
67 69	70 3	71 2	72 N	73 74 75	80

Section B: Facility Data

Name and Location of Facility Inspected	Entry Time ☐ AM ☐ PM	Permit Effective Date
American Bottoms Regional Wastewater Treatment Facility #1 American Bottoms Road, Sauget, Illinois, 62201	Exit Time/Date	Permit Expiration Date

Name(s) of On-Site Representative(s)	Title(s)	Phone No(s)
Robert D. Roddy	Plant Manager	(618) 337-1710

Name and Address of Responsible Official	Title	
George A. Schillinger	Superintendent	
	Phone No. (618) 337-1710	Contacted ☑ Yes ☐ No

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

	Permit		Flow Measurement		Pretreatment		Operations & Maintenance
	Records/Reports		Laboratory		Compliance Schedules		Sludge Disposal
	Facility Site Review		Effluent/Receiving Waters		Self-Monitoring Program		Other:

Section D: Summary of Findings/Comments *(Attach additional sheets if necessary)*

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone	Date
John McGuire	USEPA/CDO/(312) 353-2704	Jan 17, 1991
Signature of Reviewer	Agency/Office	Date
	USEPA - ESD / CDO	1-28-91

Regulatory Office Use Only

Action Taken	Date	Compliance Status
		☐ Noncompliance ☐ Compliance

Form 3560-3 (Rev. 3-25) Previous editions are obsolete.

11/6/89 - Revision

NPDES BIOMONITORING INSPECTION
SUPPLEMENTAL DATA

1. Facility name and address: 1. American Bottoms Regional Wastewater Treatment Facility
#1 American Bottoms Road
Sauget, Illinois 62201

2. NPDES Number: 2. IL0065145

3. SIC Code: 3. ______

4. Date and time sampled: 4. October 30, 31, 1990 12:00P to 11:00Am

5. Outfall No. samples: 5. 002

6. Daily average flow of discharge at time of sampling: 6. 17.3 MGD

7. Design average flow of treatment system or average flow of discharge: 7. 52 MGD

8. Sampling location description: 8. At entrance to Parshall Flume. Flume is 96 inches across.

9. Type of effluent sampled: 9. Municipal

10. Description of treatment facilities online at time of sampling: 10. Secondary activated sludge with Carbon addition to aeration tanks.

11. Were production level and treatment operations normal? 11. Yes ✓ No ______
If Not, Describe Carbon being added on a once-through basis only.

12. Effluent appearance: 12. slight yellow when viewed through VOA vial.

NPDES BIOMONITORING INSPECTION
SUPPLEMENTAL DATA
(Continued)

13. Infield measurements:
13. Temp 23°C
pH 6.86
Chlorine _____

14. Name of receiving water:
14. Mississippi River

15. $7Q_{10}$ Low flow of receiving water at nearest upstream USGS station:
15. 45,970 cfs USGS Gauging Station #7-0100 at St. Louis, Mo.

16. Was the plant chlorinating the effluent at time of sampling?
16. Yes ✓ No _____

17. Description of effluent sample preservation and transport procedures:
17. Preservation: Sample Iced
Transport: Keith Lesniak drove back with all samples and transferred custody to lab.

18. Name of person collecting sample:
18. John McGuire, Keith Lesniak

2433

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
91CM02	Seagat ABATF

SAMPLERS: *(Signature)* John McAuliffe

AFE 123;AB

REMARKS
CDO 7461

STA. NO.	DATE 90	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Acute Bioassay						Tag #
503	10/30-1/10	1155 1058	✓		OHFa 11002	2	X						5-036593, 5-036594
							X						0366

Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
John McAuliffe	10/31/90 12:51	Keith Lee			
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*
Relinquished by: *(Signature)*	Date / Time	Received for Laboratory by: *(Signature)*	Date / Time	Remarks	
Keith Lee	11-1-90 8:11A	William Langworthy	11/1/90 8:35AM		

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

5-05617

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
CHICAGO, ILLINOIS

JAN 23 1991

DATE:

SUBJECT: Review of Region 5 data for Sayet ABRTF

FROM: Charles Elly, Director
Region 5 Central Regional Laboratory

To: Data User:

Attached are the results for:

CRL Data Set Numbers: CDO 7461
Sample Numbers: 91CM02503
Parameter(s): Acute Toxicity
Laboratory:

Results Status:

(✓) DATA ACCEPTABLE FOR USE*
( ) DATA QUALIFIED AS TO USE
( ) DATA UNACCEPTABLE FOR USE

* For data acceptability requirements, refer to the method capability statement for the methods referenced.

Comments by the Quality Control Coordinator:

RECEIVED
JAN 23 1991
CENTRAL
DISTRICT OFFICE

If there are any questions regarding the data, refer them to James Adams the Quality Control Coordinator, at 353-9604

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
(5SCRL)

TRANSMITTED BY
JAN 23 1991

RECEIVED BY/DATE:

Comments:

U.S. EPA CENTRAL
REGIONAL LAB

00014

TOXICITY STUDY FY'91

AMERICAN BOTTOMS REGIONAL TREATMENT FACILITY

SAUGET, ILLINOIS

CENTRAL DISTRICT OFFICE

Data Set: CD07461
Sample No: 91CM02S03
Outfall No: 002

ORGANIC LABORATORY SECTION:BIOLOGY TEAM
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION V, CENTRAL REGIONAL LABORATORY
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605

January 15, 1991

INTRODUCTION

Sauget ABRTF effluent was tested for its effect on three species at two trophic levels. Tests were conducted by the U.S. Environmental Protection Agency, Central Regional Laboratory - Biology Team, in Chicago in support of the National Pollution Discharge Elimination System (NPDES) permit program.

METHODS

The U.S. Environmental Protection Agency, Region V, Central Regional Laboratory (CRL) conducted a series of three toxicity tests to characterize each effluent. These included acute static testing of the fathead minnow Pimephales promelas in a 96 hr definitive test, Daphnia pulex in a 48 hr definitive test, and Ceriodaphnia dubia in a 48 hr definitive test. These tests examined two trophic levels of the aquatic community to determine short term impact as a direct result of exposure to discharger outfalls. All methods follow CRL Standard Operating Procedures.

Dilution water used for the fathead minnow experiment was charcoal filtered, dechlorinated, tap water from Lake Michigan. Ceriodaphnia and Daphnia dilution water was reconstituted mini-Q water with a hardness between 80-125 mg/L $CaCO_3$. Individual test conditions are summarized in the Appendix.

Physical characteristics of the dilution water and effluent were monitored at the initiation and conclusion of tests. Control and 100% effluent was analyzed for pH, hardness, dissolved oxygen and alkalinity at the start and conclusion of the test.

Effluent was collected by USEPA - Central District Office as a 24 hour composite sample. The effluent was brought to the USEPA Central Regional Laboratory by the field crew, while stored on ice. The initiation of tests were within 36 hrs of sample collection.

RESULTS

Definitive Fathead Minnow Static Acute Toxicity Test

Fathead minnows were subjected to a range of dilutions of Sauget ABRTF effluent for a 96 hr bioassay test. All tests were run in replicate. Juvenile fish, 8 days old were used. A 96 hour test was run on a control and six effluent dilutions (Table 1). The fathead minnow data for this test is invalid due to unacceptable control mortality occuring after 24 hours (control mortality $\leq$ 10%).

Definitive Daphnia pulex Static Acute Toxicity Test

Neonates of *D. pulex* were subjected to a dilution series of Sauget ABRTF effluent for a period of 48hrs. The subject effluent was acutely toxic to the Daphnids in the 25% and greater effluent concentrations, where all but two test organisms died within 48 hours. At the conclusion of the test, fourteen organisms were dead in the 12.5% concentration, five in the 6.25%, and four at the 3.13% level. No mortality occurred in the last concentration. An EC50 of 8.5% effluent, with a 95% confidence interval between 6.7% and 10.8% effluent, was calculated. (Table 2).

Definitive Ceriodaphnia dubia Static Acute Toxicity Test

Neonates of *Ceriodaphnia dubia*, less than 24 hr old, were exposed to Sauget ABRTF effluent in a dilution series for a duration of 48 hrs. The effluent was acutely toxic to the test species in the two highest concentrations. Within 48 hours, all test organisms were dead in the 100%, 17 of 20 were dead in the 50%, and 3 were dead in the 25% effluent concentrations. No mortality occurred in the remaining four effluent concentrations. An EC50 of 35.3% effluent, with a 95% confidence interval between 28.6% and 45.3% effluent, was calculated. (Table 3).

Ammonia toxicity

For this study, the Biology Team was asked to take an aliquot of the sample dedicated to the acute toxicity test and have it analyzed for total ammonia. This was done to determine if the sample for biology was comparable to that collected for inorganic chemical analysis. Both samples were reported to contain ammonia (NH_4^+) levels of 199 mg/l as N. In addition, an aliquot of the lowest concentration (1.56% effluent) run in the *Ceriodaphnia* acute test was submitted for analysis. The reported value was 3.91 mg/l NH_4^+, as N.

Since it is the un-ionized ammonia (NH_3) which is the toxic component of the total ammonia values, an attempt was made to quantify the amount of un-ionized ammonia in each test concentration for both the *Daphnia* and *Ceriodaphnia* acute tests. These approximate NH_3 values result from; (1) extrapolated pH values for the intermediate test concentrations and real values for the high and low test concentrations, and (2) use of Thurston (1974) for percent un-ionized NH_3 correction factors. Tables 4 and 5 give the calcualted results for the *Daphnia* and *Ceriodaphnia* tests, respectively. The un-ionized NH_3 values for the calculated LC50 values were 1.00 mg/l for the *Daphnia* and 2.31 mg/l for the *Ceriodaphnia*. These ammonia values are within the range of LC50 values for un-ionized ammonia reported in the literature.

Summary

Only Ceriodaphnia dubia and Daphnia pulex data are used in the acute series of tests conducted for Sauget ABRTF. The fathead minnow test is invalid due to unacceptable control mortality.

In the Ceriodaphnia test the most severe mortality occurred in the 100% and 50% effluent concentrations. For the Daphnia, severe mortality occurred in the 100%, 50%, 25%, and 12.5% concentrations. EC50's for these two tests species were 35.3% and 8.5% effluent respectively, which is considered to be acutely toxic.

The dissolved oxygen, pH, total alkalinity, total hardness, and specific conductivity were within acceptable ranges. Residual chlorine was reported at 0.35 mg/l. The effluent sample was dechlorinated with 0.1 ml/l sodium thiosulfate (10%). The test effluent had a distinct straw-yellow color to it. A slight chemical odor was present.

TABLE 1. Fathead minnow (Pimephales promelas) static acute toxicity test results for Sauget ABRTF (CD07461).

Percent Effluent	Number of Live Organisms/Percent Mortality Percent 0hr	24hr	48hr	72hr	96hr
0	20/0	18/10	15/25	12/40	2/90
3.12	20/0	15/25	13/35	10/50	9/55
6.25	20/0	13/35	8/60	0/100	0/100
12.5	20/0	11/45	2/90	0/100	0/100
25.0	20/0	1/95	0/100	0/100	0/100
50.0	20/0	0/100	0/100	0/100	0/100
100.0	20/0	0/100	0/100	0/100	0/100

TABLE 2. *Daphnia pulex* neonate static acute toxicity test results for Sauget ABRTF (CD07461).

Percent Effluent	Number of Live Organisms/Percent Mortality	
	0hr	48hr
0	20/0	20/0
1.56	20/0	20/0
3.12	20/0	16/20
6.25	20/0	15/25
12.5	20/0	6/70
25.0	20/0	2/90
50.0	20/0	0/100
100.0	20/0	0/100

TABLE 3. *Ceriodaphnia dubia* neonate static acute toxicity test results for Sauget ABRTF (CD07461).

Percent Effluent	Number of Live Organisms/Percent Mortality	
	0hr	48hr
0	20/0	20/0
1.56	20/0	20/0
3.12	20/0	20/0
6.25	20/0	20/0
12.5	20/0	20/0
25.0	20/0	17/15
50.0	20/0	3/85
100.0	20/0	0/100

TABLE 4. Un-ionized NH_3 values for the <u>Ceriodaphnia</u> acute test for Sauget ABRTF (CDO 7461).

Percent Test Concentration	pH	Total NH_4^+ (mg/l)	% NH_3	NH_3 (mg/l)
100.0	7.55	255	.0141	3.60
50.0	7.77	127.5	.0229	2.92
25.0	7.88	63.75	.0294	1.87
12.5	7.94	31.88	.0336	1.07
6.25	7.97	15.94	.0359	0.57
3.13	7.98	7.97	.0367	0.29
1.56	7.99	3.99	.0374	0.15

LC50 of 35.36% effluent ≃ 2.31 mg/l NH_3

TABLE 5. Un-ionized NH_3 values for the <u>Daphnia</u> acute test for Sauget ABRTF (CDO 7461).

Percent Test Concentration	pH	Total NH_4^+ (mg/l)	% NH_3	NH_3 (mg/l)
100.0	7.55	255	.0141	3.60
50.0	7.85	127.5	.0275	3.51
25.0	8.00	63.75	.0382	2.44
12.5	8.07	31.88	.0448	1.43
6.25	8.10	15.94	.0476	0.76
3.13	8.12	7.97	.0499	0.40
1.56	8.13	3.99	.0511	0.20

LC50 of 8.50% effluent ≃ 1.00 mg/l NH_3

TABLE A-1. Summary of Test Conditions for the fathead minnow (*Pimephales promelas*) Static Acute Toxicity Test.

1. Test Type:	Static
2. Temperature:	22 ± 1 C
3. Light Quality:	Ambient Environmental Chamber
4. Light Intensity:	50-100 ft-c
5. Photoperiod:	16hr light, 8hr dark
6. Test Chamber Size:	600mL
7. Test Solution Volume:	500mL
8. Renewal of Test Concentration:	None
9. Age of Test Organism:	8 days
10. No. of Fish per Chamber:	10
11. No. of Replicate Test Chambers per Concentration:	2
12. Fish per Concentration:	20
13. Feeding Regime:	Feeding not required
14. Aeration:	None unless DO falls below 40% saturation
15. Dilution Water:	Culture Unit
16. Effluent Test Concentrations:	0, 3.12, 6.25, 12.5, 25, 50, 100%
17. Dilution Factor:	ca. 0.5
18. Test Duration:	96hrs
19. Effects Measured:	Percent survival

TABLE A-2. Summary of Test Conditions for Daphnia Static Acute Toxicity Tests.

1. Test Type:	Static
2. Temperature:	22 ± 1 C
3. Light Quality:	Ambient Environmental Chamber
4. Light Intensity:	50-100 ft-c
5. Photoperiod:	16hrs light, 8hrs dark
6. Test Chamber Size:	100mL
7. Test Solution Volume:	100mL
8. Renewal of Test Concentration:	None
9. Age of Test Organisms:	Neonates <24hrs
10. No. of Neonates per Chamber:	10
11. No. of Replicate Test Chambers per Concentration:	2
12. Neonates per Concentration:	20
13. Feeding Regime:	Feeding not required
14. Aeration:	None unless DO falls below 40% saturation
15. Dilution Water:	Reconstituted deionized water
16. Effluent Test Concentrations:	0, 1.56, 3.12, 6.25, 12.5, 25, 50, 100%
17. Dilution Factor:	ca. 0.5
18. Test Duration:	48hrs
19. Effects Measured:	Percent survival

TABLE A-3. Summary of Test Conditions for Ceriodaphnia dubia Static Acute Toxicity Tests.

1. Test Type:	Static
2. Temperature:	22 ± 1 C
3. Light Quality:	Ambient Environmental Chamber
4. Light Intensity:	50-100 ft-c
5. Photoperiod:	16hrs light, 8hrs dark
6. Test Chamber Size:	100mL
7. Test Solution Volume:	100mL
8. Renewal of Test Concentration:	None
9. Age of Test Organisms:	Neonates <24hrs
10. No. of Neonates per Chamber:	10
11. No. of Replicate Test Chambers per Concentration:	2
12. Neonates per Concentration:	20
13. Feeding Regime:	Feeding not required
14. Aeration:	None unless DO falls below 40% saturation
15. Dilution Water:	Reconstituted Milli-Q water
16. Effluent Test Concentrations:	0, 1.56, 3.12, 6.25, 12.5, 25, 50, 100%
17. Dilution Factor:	ca. 0.5
18. Test Duration:	48hrs
19. Effects Measured:	Percent survival

TABLE A-4. Water Chemistry Data for Sauget ABRTF (CD07461).

Sample Date: 10:30-31:90

Lab Arrival Date: 11:1:90

Outfall No: 002

	Acute Fathead minnow	Acute Ceriodaphnia	Acute Daphnia
	initial-final	initial-final	initial-final
Dissolved Oxygen (ppm)			
0%	8.3 - 8.3	8.4 - 7.9	7.9 - 8.0
100%	8.3 - 7.5	8.2 - 7.9	8.3 - 8.0
pH			
0%	8.1 - *	8.0 - *	8.1 - 8.1
100%	7.6 - 7.6	7.5 - *	7.5 - 7.5
Temperature (C)			
0%	22	22.5	21
100%	20	20	20
Alkalinity (mg/L CaCO3)			
0%	113 - *	68 - *	56 - 67
100%	114 - 138	114 - *	114 - 96
Hardness (mg/L CaCO3)			
0%	119 - *	125 - *	95 - 101
100%	910 - 835	910 - *	910 - 920
Specific Conductivity (uS)			
0%	317 - *	488 - *	347 - 354
100%	5920 - 5560	5920 - *	5920 - 5530

Total Residual Chlorine: ND after dechlorination

Species:	Pimephales promelas	Ceriodaphnia dubia	Daphnia pulex
Lifestage:	Juvenile	Neonate	Neonate
Age:	8 days	<24 hrs	<24 hrs
Date Test Initiated:	11:1:90	11:1:90	11:1:90

*denotes value not available

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region V

DATE: JAN 2 9 1991

SUBJECT: Evaluation of ESD Product

RE: ABAWTF, Sauget, IL BIO

FROM Willie H. Harris, Chief
Central District Office (5S CDO)

ACT # AFE123iAB

TO:

The subject product you requested is attached. Please take a few minutes to fill out this evaluation form, sign it, have it initialed by your Section and Branch Chief, and return it to me. This information will help us to better meet your needs and also provide important feedback to the staff. I have provided an addressed Special Attention envelope for your convenience. Please circle a number from 1 to 5 to indicate your level of satisfaction: 1 is unsatisfactory, 3 is average, and 5 is outstanding.

1) How well did the product satisfy your objectives? 1 2 3 4 5

2) How do you rate completeness? 1 2 3 4 5

3) How do you rate quality? 1 2 3 4 5

4) How do you rate technical competence? 1 2 3 4 5

5) How do you rate timeliness? 1 2 3 4 5

6) What is your overall rating? 1 2 3 4 5

7) What suggestions do you have for improvement? 1 2 3 4 5

8) How did you or will you use the product? 1 2 3 4 5

Rater Signature _____

Unit or Section Chief Initials _____